

***Unit of Action  
Maneuver Battle Lab***

## **Unit of Action Fires and Effects**



**COL Waggoner  
UAMBL COTD Directorate**



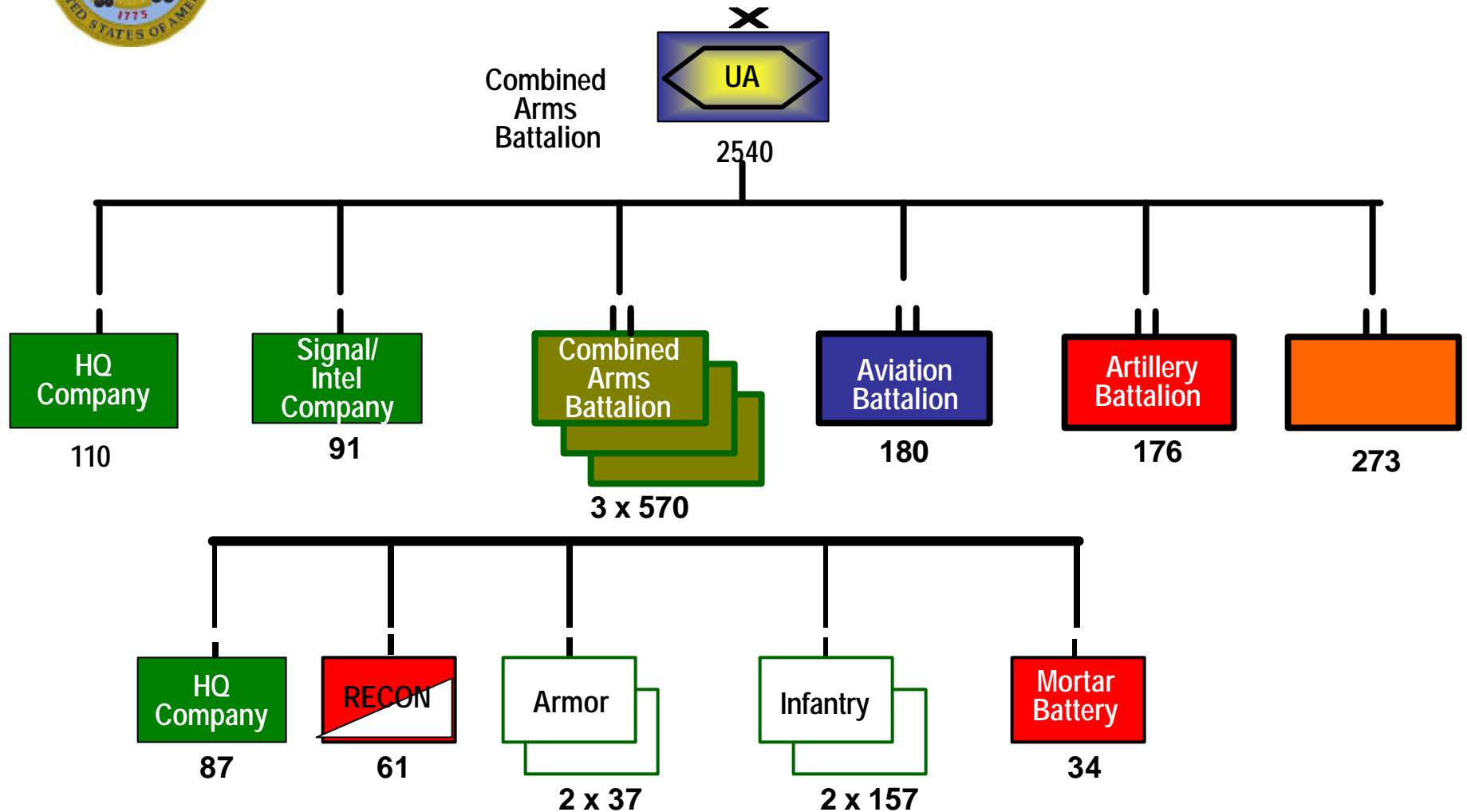
# Purpose

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**To provide insights based upon  
Experimentation and Analysis  
of how the UA will apply Fires  
and Effects on the Battlefield.**



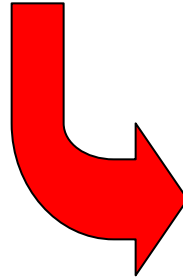
# Unit of Action Design





# Threat Options and Initiatives

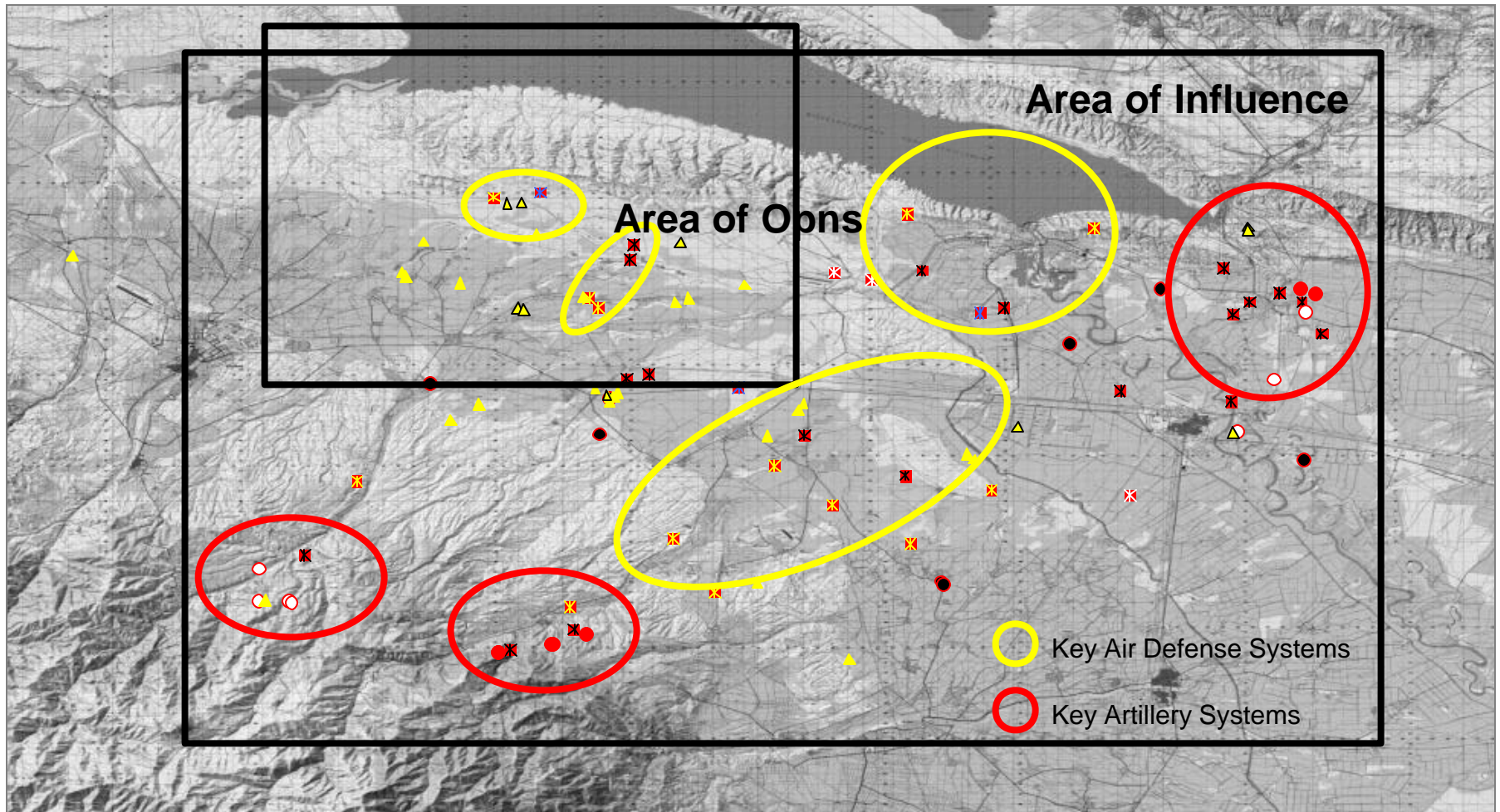
- *Cunning and Adaptive Enemy with very high tech arsenal*
- Proliferate *decoys* to create more targets than Blue can handle
- *Emplace significant obstacles*
- *Create operational shields* using civilians
- Enemy *units that go to ground and allow themselves to be bypassed*, in order to attack extended lines of communication of the UA. *Avoid head-on fights with UA*
- *Eliminate technological advantage by attacking key UA ISR assets & control nodes*
- *Exploit built-up areas & complex terrain by forcing Blue to dig Red out of towns and villages*



1. Hide in the cities & try to draw us into an Urban fight
2. Husband key systems for a mass casualty opportunity



# UA Kills of Red High Payoff Targets



✕ 2S6 SP ADA   ■ SA-13/FO SAM   ✕ Pantzylr/FO ADA   ■ SA-15 SAM   ● 2S19 152mm   ● 2S3M 152mm   ○ BM-21 MRL   ▲ AT-5B   ▲ T-90 Tank

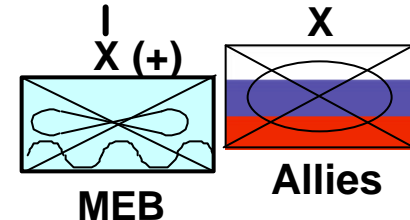
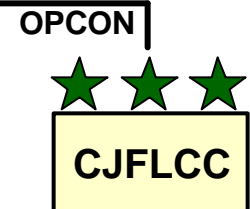
**In OE, HPT's are in Sanctuary, Out of Area of Operations**



# CJTF Forces (That impact Brigade Opns)



Joint Intelligence Collection Authority  
JSEAD mission is initial collection priority



## US Forces

### Special Forces Group

Ranger Battalion

CTAF (US)

Navy

USAF

## Allied

SAS

US Fighter/Bombers		Allied Fighter/Bombers	
<b>F-16</b> <b>C/CG</b>	<b>12</b>	F-16C	72
F-22	48	Fighter	18
JSF	48	JSF	24
F-15E	18	Fighter	18
B-52	6	Bomber	24
B-2	6		
B-1	6		
Airborne Laser	5		

## SEAD

<b>F-16 CJ</b>	<b>48</b>
EA-6B FO	12

## ISR

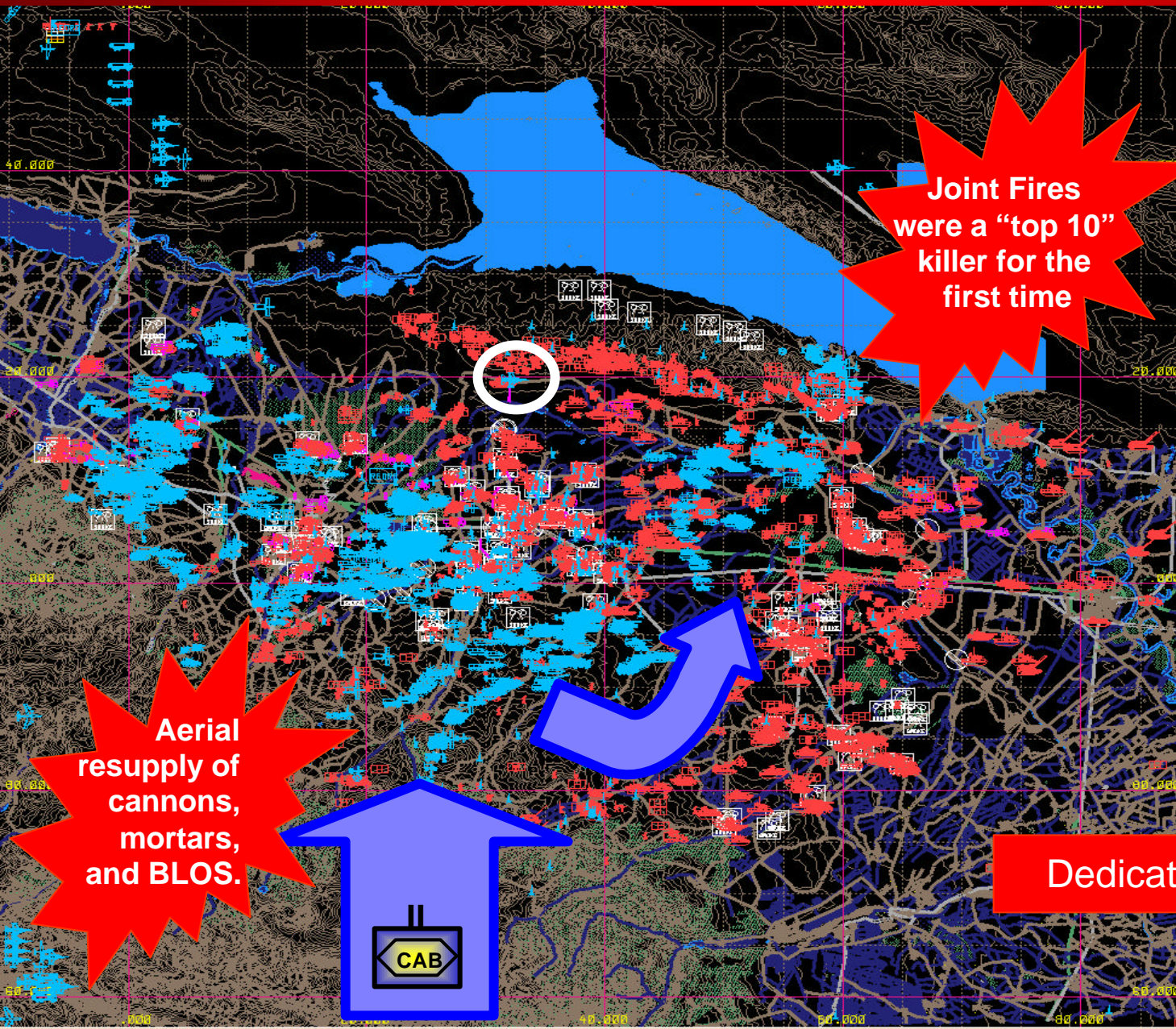
Rivet Joint	5
Predator	8
<b>Global Hawk</b>	<b>4</b>
<b>JSTARS</b>	<b>5</b>
U2S	4
EC-130H Jammer	5

## Corps Units

Aviation Brigade  
Artillery Brigade  
2 x Air Defense Artillery  
Brigade  
Military Intelligence Brigade  
Intelligence, Surveillance,  
Reconnaissance Command  
Engineer Brigade Signal  
Brigade  
2 Military Police Brigade  
Chemical Brigade Medical  
Brigade  
COSCOM



# Intra Theater Maneuver



Combined Arms Battalion 3 and an NLOS Battery was moved 200 KM south by C130 and C17 aircraft in 8 hours.

Allows us to change the battlefield geometry

Dedicated Battery . . .



# Blue Top “Killers”

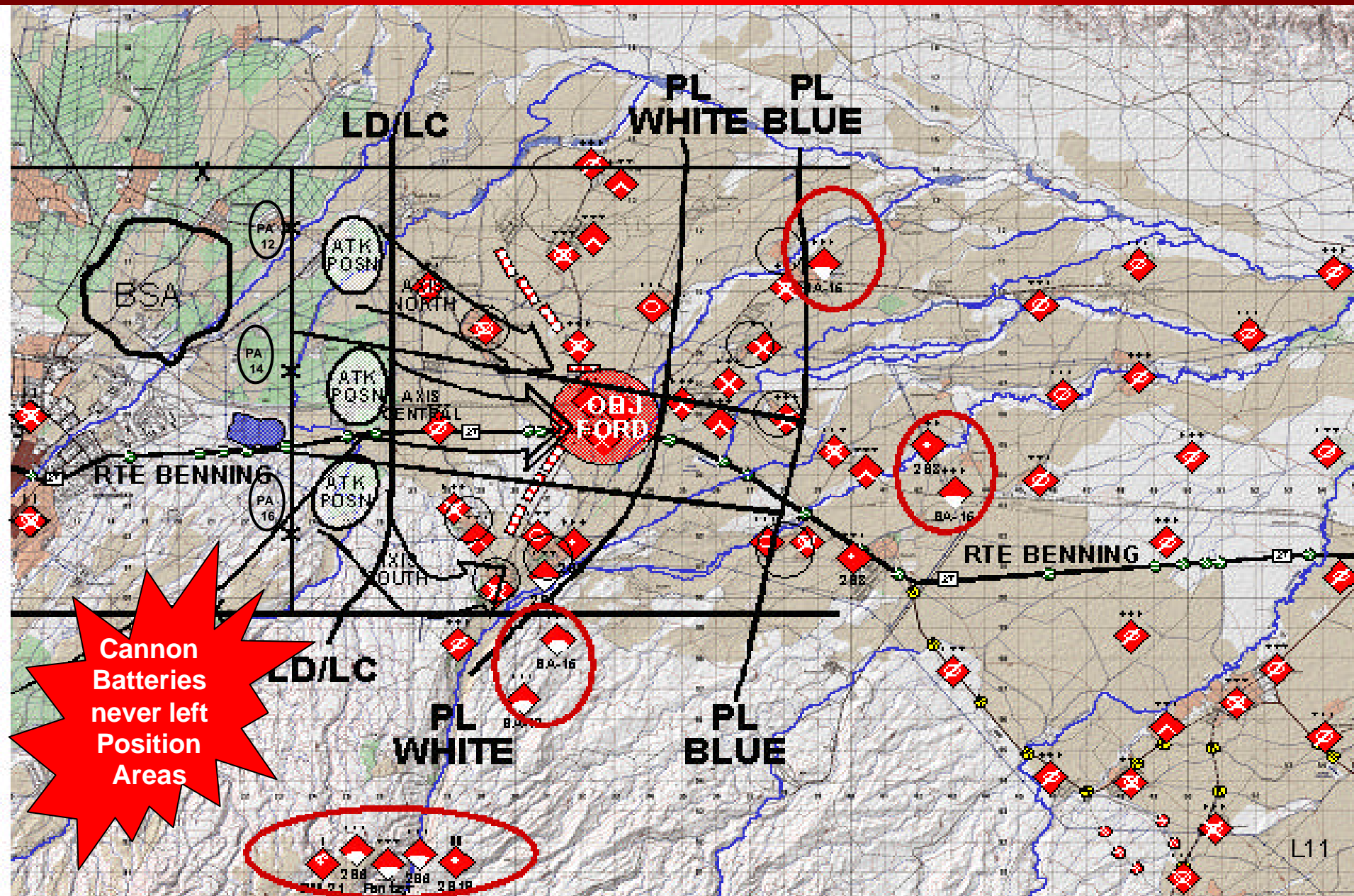
## Blue Indirect Fire “Killers”

System	Kills
NLOS-LS	144
NLOS Cannon	91
F16	26
Comanche	56
NLOS Mortar	33
HIMARS	12

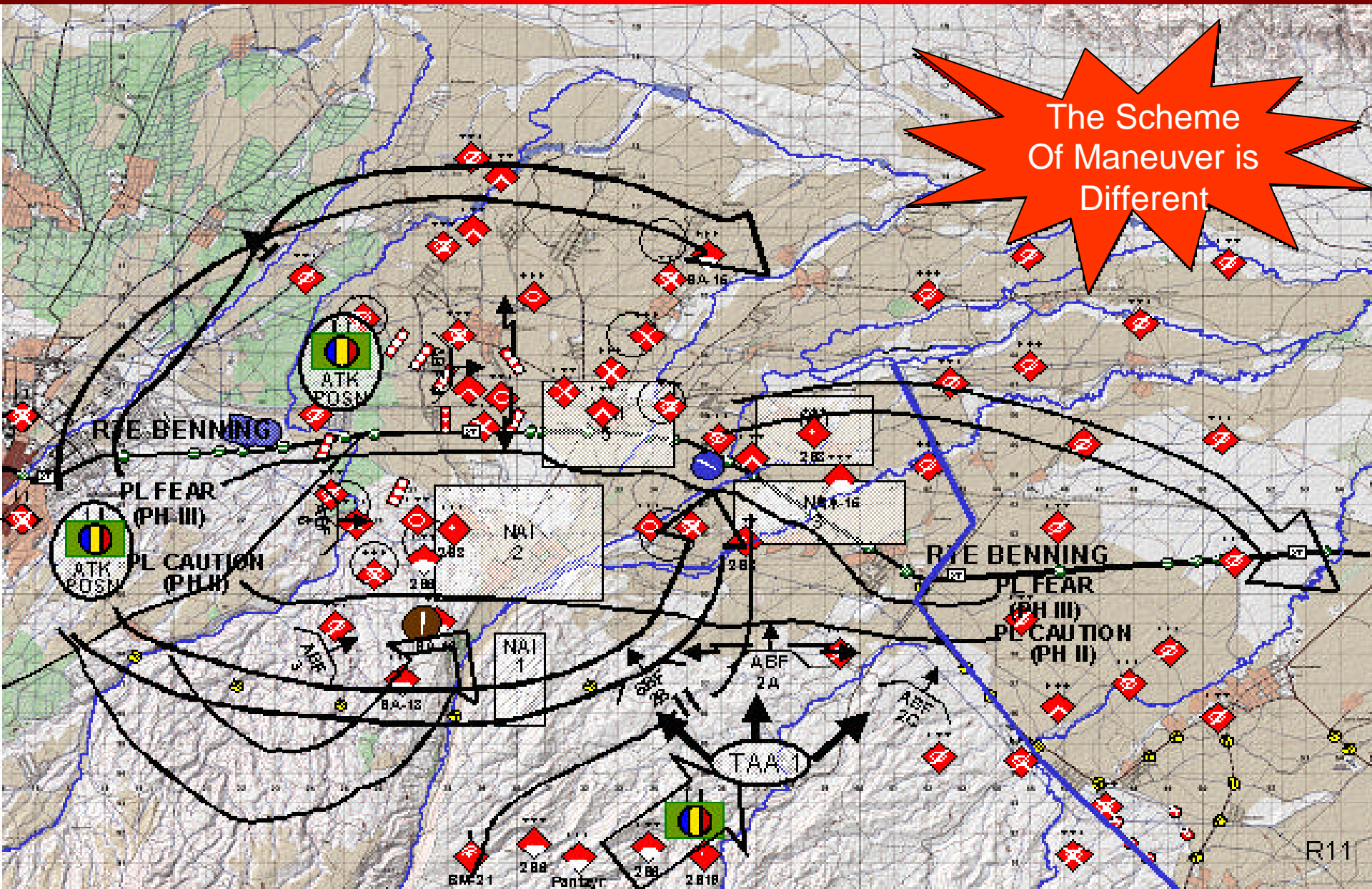
System	Kills
MCS BLOS	206
ICV	42
Comanche	27
OICW	18
ARV Assault	17
ARV (L) Assault	5



# Heavy Brigade: Heavy Prep Prior to Assault



# UA: You Need Volumetric Fires to Get There!



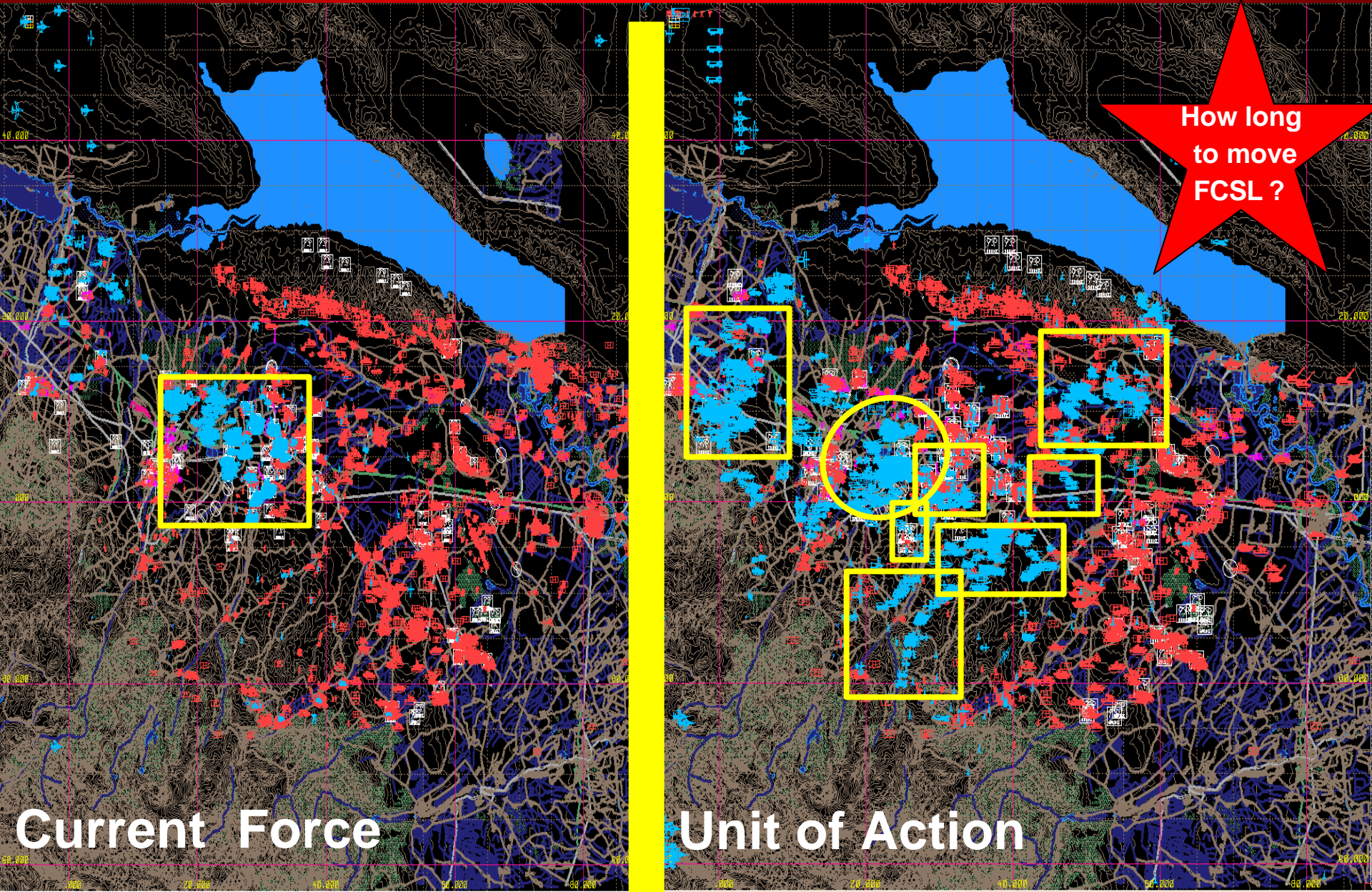
# TRADOC Analysis Command (TRAC)

## Independent Analysis of UA

- UA demonstrated an increase in stand-off lethality over Current and SBCT PiP'd forces. The UA used a greater percentage of precision munitions. MCS increases lethality of BLOS fires.
- Stand-off capability of the UA decreases risk to manned systems and dismounted soldiers.
- UA is able to acquire and kill more HPTs at stand-off. The responsiveness of UA "Network Fires" degrades the Threat's freedom to maneuver HPTs.
- UA technology increases Blue's ability to find, engage, and destroy HPTs. Broader scheme of maneuver by UA forces led to more engagements with Threat, increasing number of HPTs killed.
- UA's unmanned lethality reduces the number of dismounted lethal engagements. UA forces have the ability to engage and kill targets through a variety of means (potentially reducing vulnerabilities due to the "network" or "bad weather").
- NLOS and BLOS fires of the UA are more effective than those of the SBCT PiP'd. Stand-off effectiveness of UA reduces the number of LOS kills.

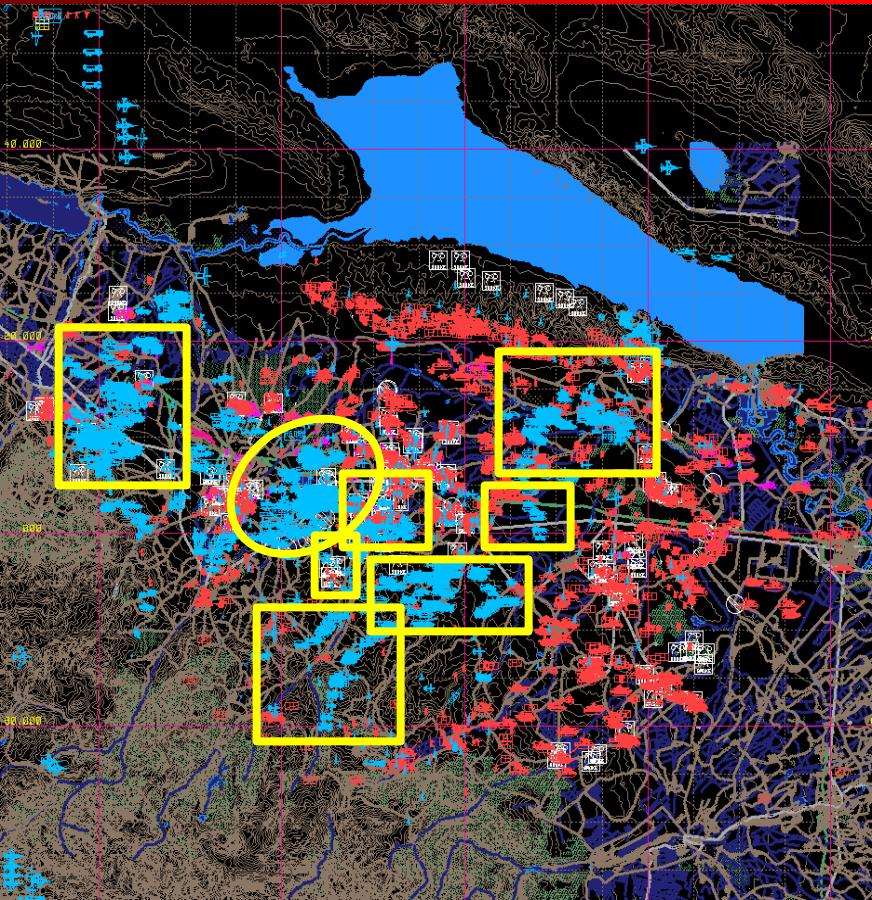


# The UA Fights on a Non-Contiguous Battlefield

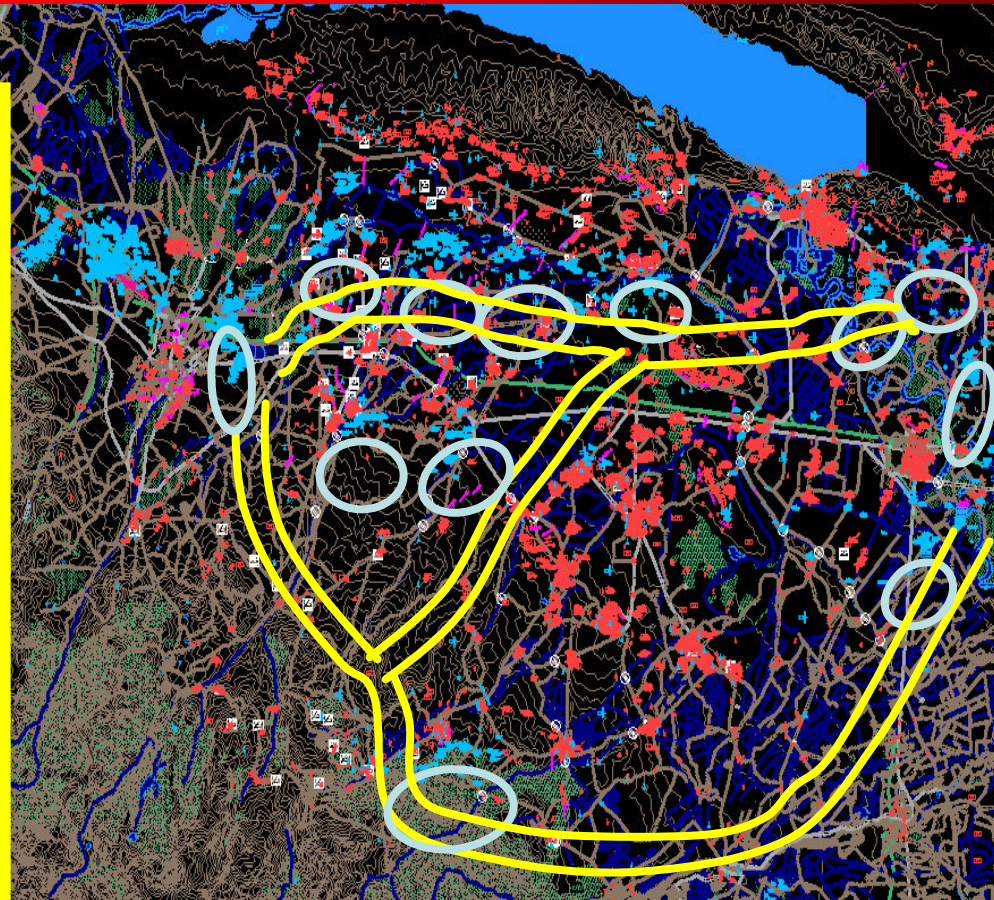




# Endstate Comparison



**UA 5/6... 2015-2018**  
**23 December 02**

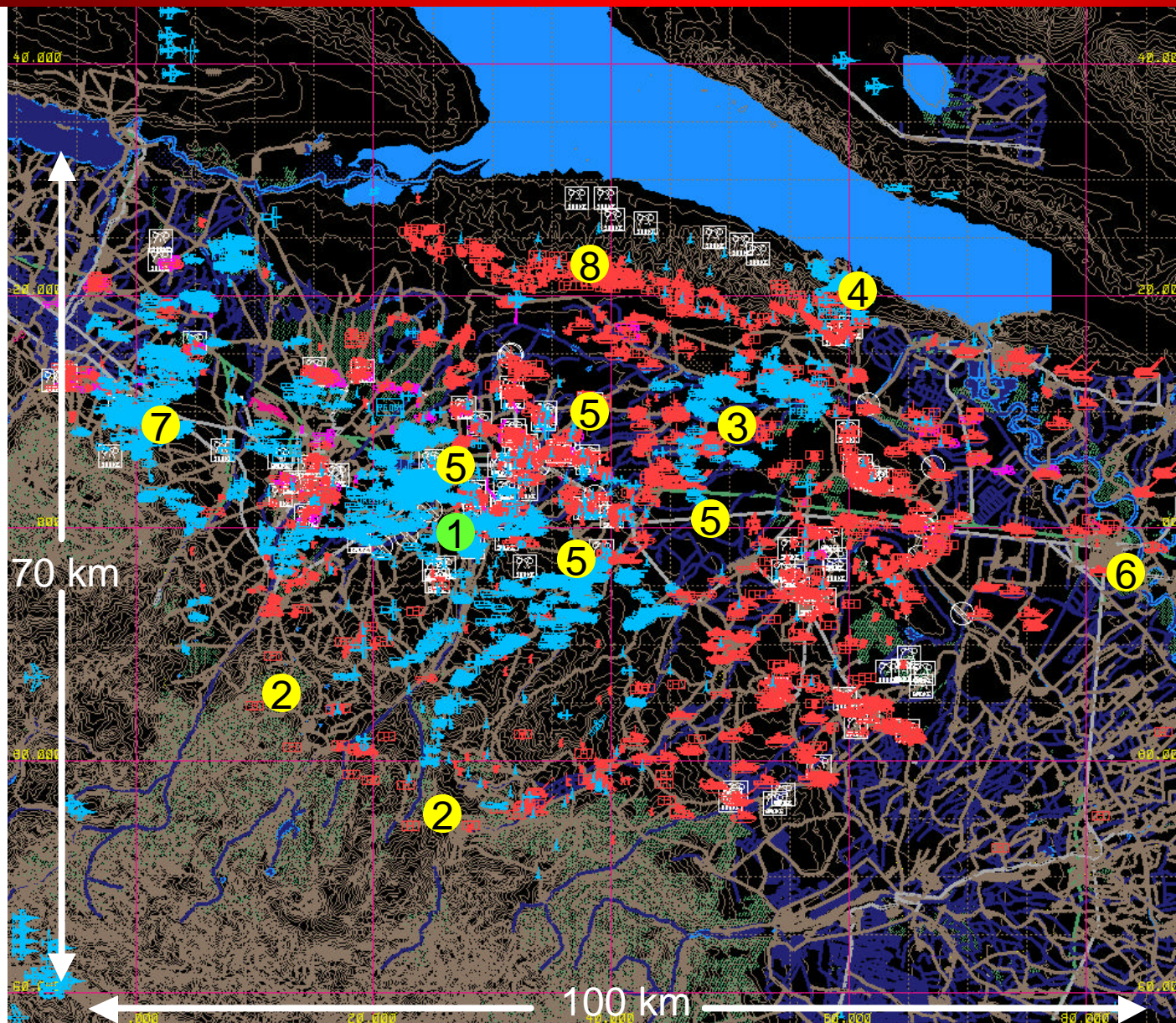


**UA 1 2010-2012**  
**28 March 03**

**Leader Training is significant: A mindset change in how small units fight**



# Multiple Dilemmas for the Enemy



- 1 Clear town 23
- 2 Destroy BM21s
- 3 Airfield Seizure
- 4 Air Assault/  
Seize Dam
- 5 Fix NW and  
Center En Bns
- 6 Destroy ADA for  
Future Opns
- 7 Sustainment  
Base Relocation
- 8 Neutralize En Bn  
on Ridge





# Battle Space by Echelon

**Area of Influence:** A geographical area in which a commander can directly influence operations by maneuver or fire support system normally under the commander's command or control. Areas of influence surround and include the associated AO.

	<u>Area of Influence</u>	<u>Approximate Area of Interest</u>
PLT	8 km r	16 km r
CO	16 km r	30 km r
BN	30 km r	75 km r
BDE	75 km r	150 km r

**Organic Sensors and Shooters at every echelon**

**Brigade Commander can focus on setting conditions, killing HPT's**



# Networked Fires, Joint

The UA is designed to be **interdependent with the UE and Joint assets**. The Operational Architecture of the UA allows any UA platform or dismounted soldier to develop **a direct sensor to shooter link with any UA, UE, or Joint fires platform**.

Networked Lethality KPP: The FCS FoS must be capable of **Joint networked lethal and non-lethal effects** that achieve overmatch – out of contact and in contact, at tactical standoff and in close combat to defeat the target sets detailed in Chapter 4 FCS STAR.



# Beyond Line of Sight

**BLOS-** An extension of traditional direct fire that extends the range to the next terrain compartment. BLOS enables standoff engagements at greater ranges and also opens up fields of fire previously denied to firing elements due to the restrictions of intervening terrain, adverse weather effecting LOS engagement or range to the target. Soldiers and crews will employ BLOS fires, extending their vision using a combination of organic three-dimensional sensors and networked fires to establish a direct sensor-to-shooter linkage. BLOS is still direct fire in that the gunner pulling the trigger sees the target directly through a sensor that has a sensor-to-shooter link to his vehicle.





# Reduce Latency & Improve Responsiveness

- Remove links (intervention points) in the kill chain



Intervention Point



Battery

Fire Mission



Soldier

Target ID



Fire Support

Call For Fire

CO/BN Fire Support Element

Clear Fires

Determine Shooter

Enter AFATDS Que



BDE Fire Support Element

Determine Shooter

Clear Fires

Prioritize



FA Bn TOC

Prioritize

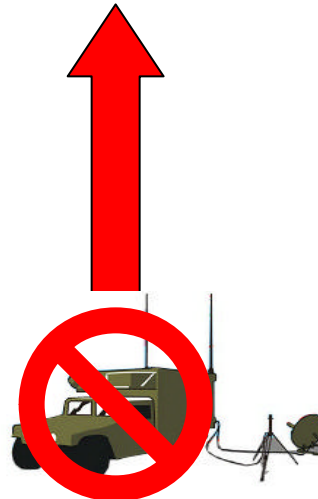
Assign Shooter



BN FDC

Calculate Gunnery Solution

Send to Guns



Battery FDC

Calculate Gunnery Solution

Send to Guns



# Reduce Latency & Improve Responsiveness

Levels of Acquisition: The ability to register one type of sensor data with another without lengthy human analysis significantly reduces latency.

- **Detection:** I know something is there but do not know what it is.
- **Classification:** Classify the Detection into a very broad category. I know it is a tracked vehicle.
- **Recognition:** Recognition is the first level of acquisition that you can target within the ROE. Recognition implies that you recognize the target within the category in which you have classified it. I know it is a tank.
- **Identification:** Target ID would determine a potential target as a T-72 tank.
- **Combat ID:** would determine the target is a friendly or a neutral T-72 tank.



# Reduce Latency & Improve Responsiveness

Fusion at platoon and company level significantly reduces latency

- Receive Sensor Data: Level 0 Fusion is the initial processing accomplished at or near the sensor that organizes the collected data into a usable form for the system or person who will receive it.
- Add Sensor Data to the Data Base in Usable Form: Level 1 Fusion takes new inputs and normalizes its data. Level 1 Fusion correlates it into an existing entity database and updates that database.
- **Reports: It is a target!** Level 2 Fusion aggregates individual entities or elements, analyzes those aggregations, and resolves conflicts.

## Joint Precision Engagement

### 3. Information sent through Networked Battle Command

## 1. Navy ACS identifies target

5. Networked Fires application selects Tomahawk for **sensor-to-weapon-to-target** pairing

4. UA sends CIs III UAV to provide target designation

## 6. Comanche & SUGV conduct BDA

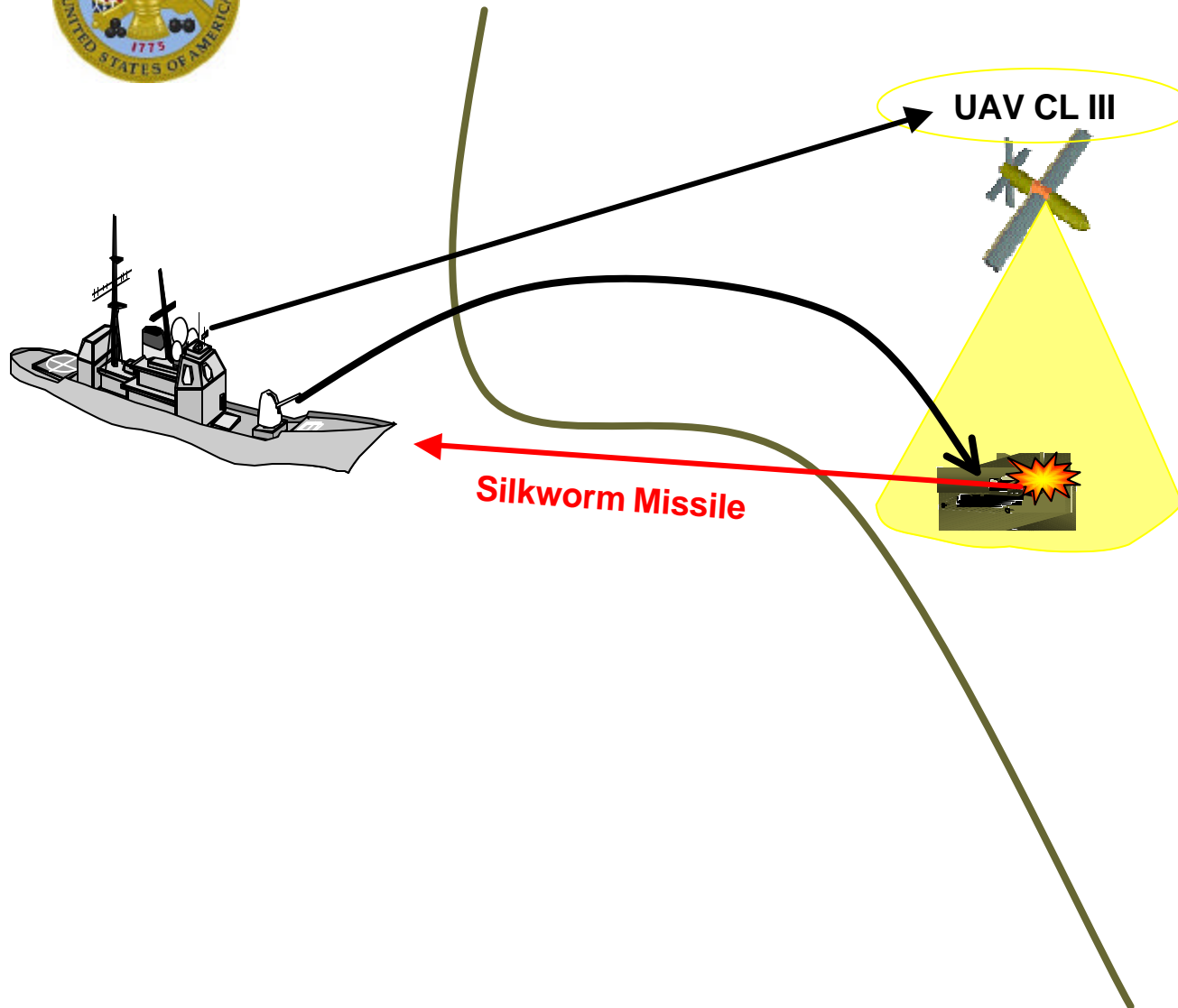
**2. Infantry Soldier confirms target(s)**





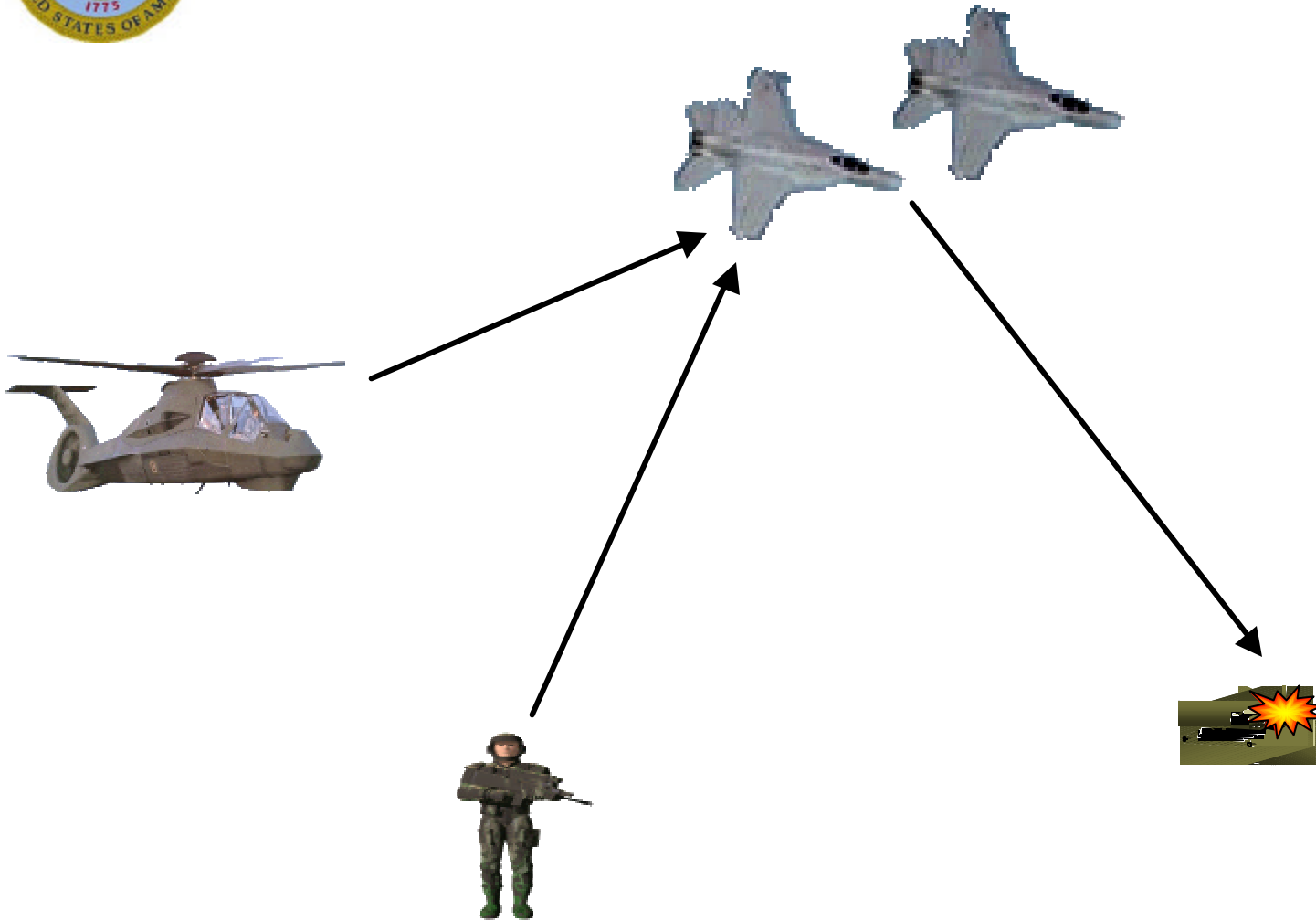


# Networked Fires Interoperability Use Cases



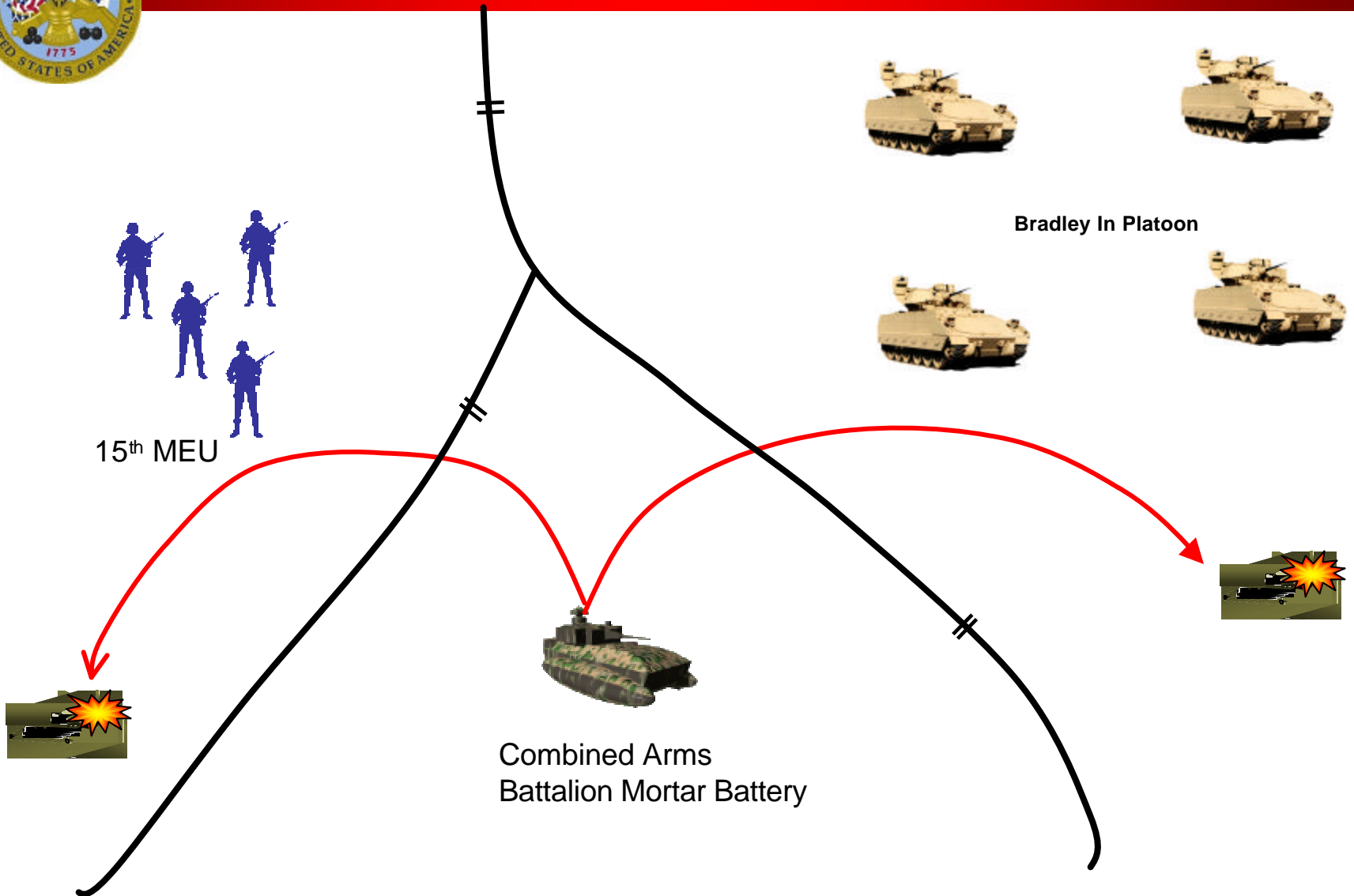


# Networked Fires Interoperability Use Cases





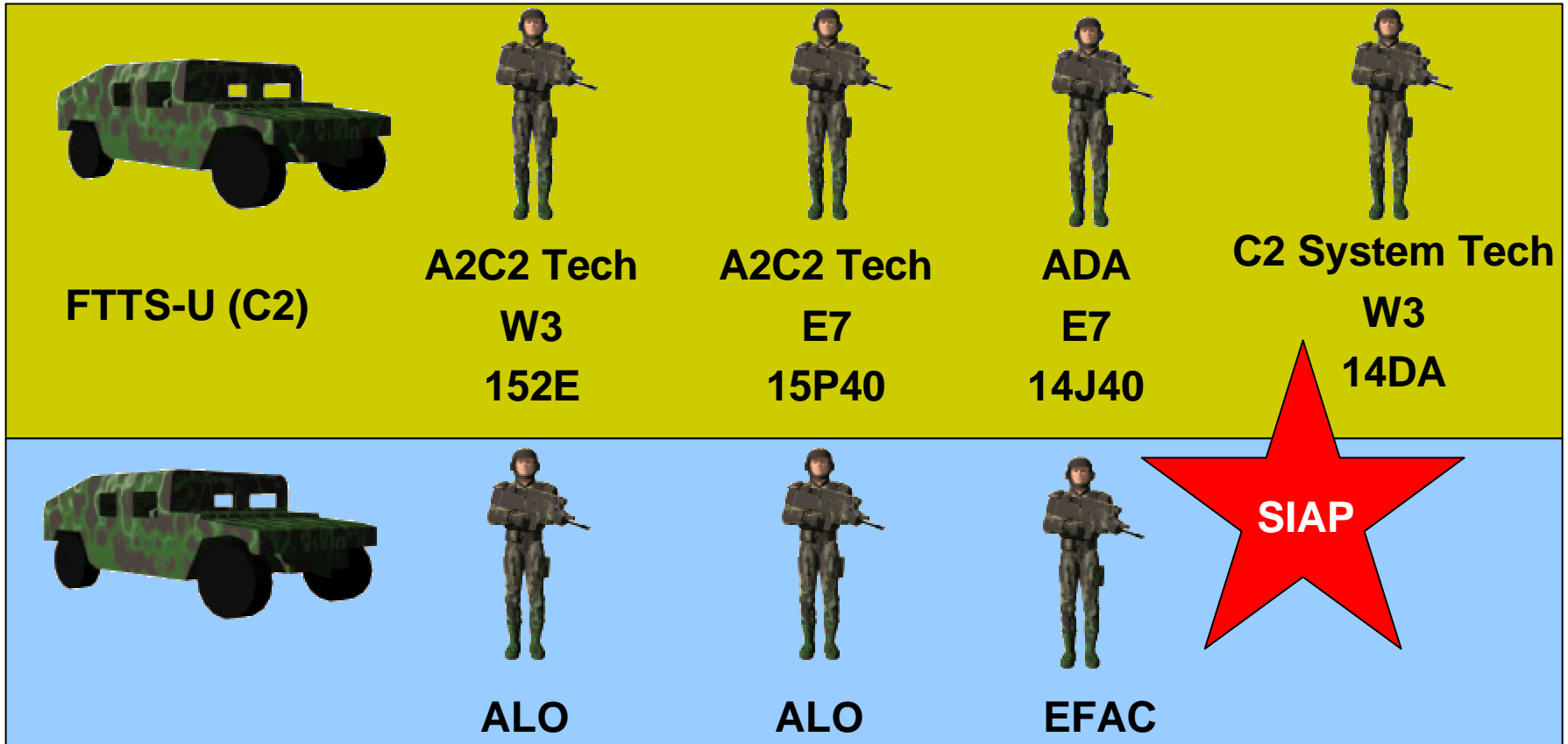
# Networked Fires Interoperability Use Cases







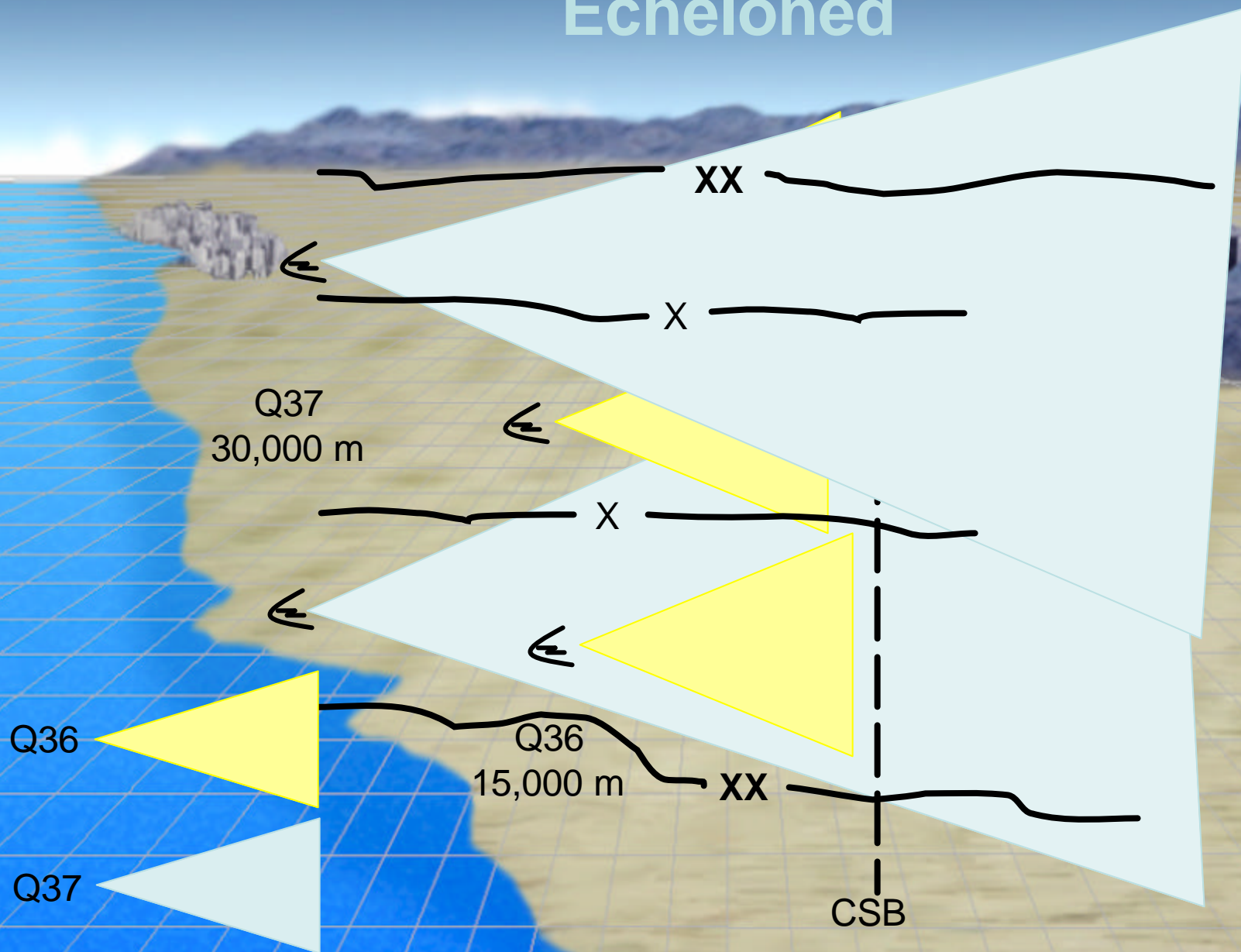
# A2C2 Section



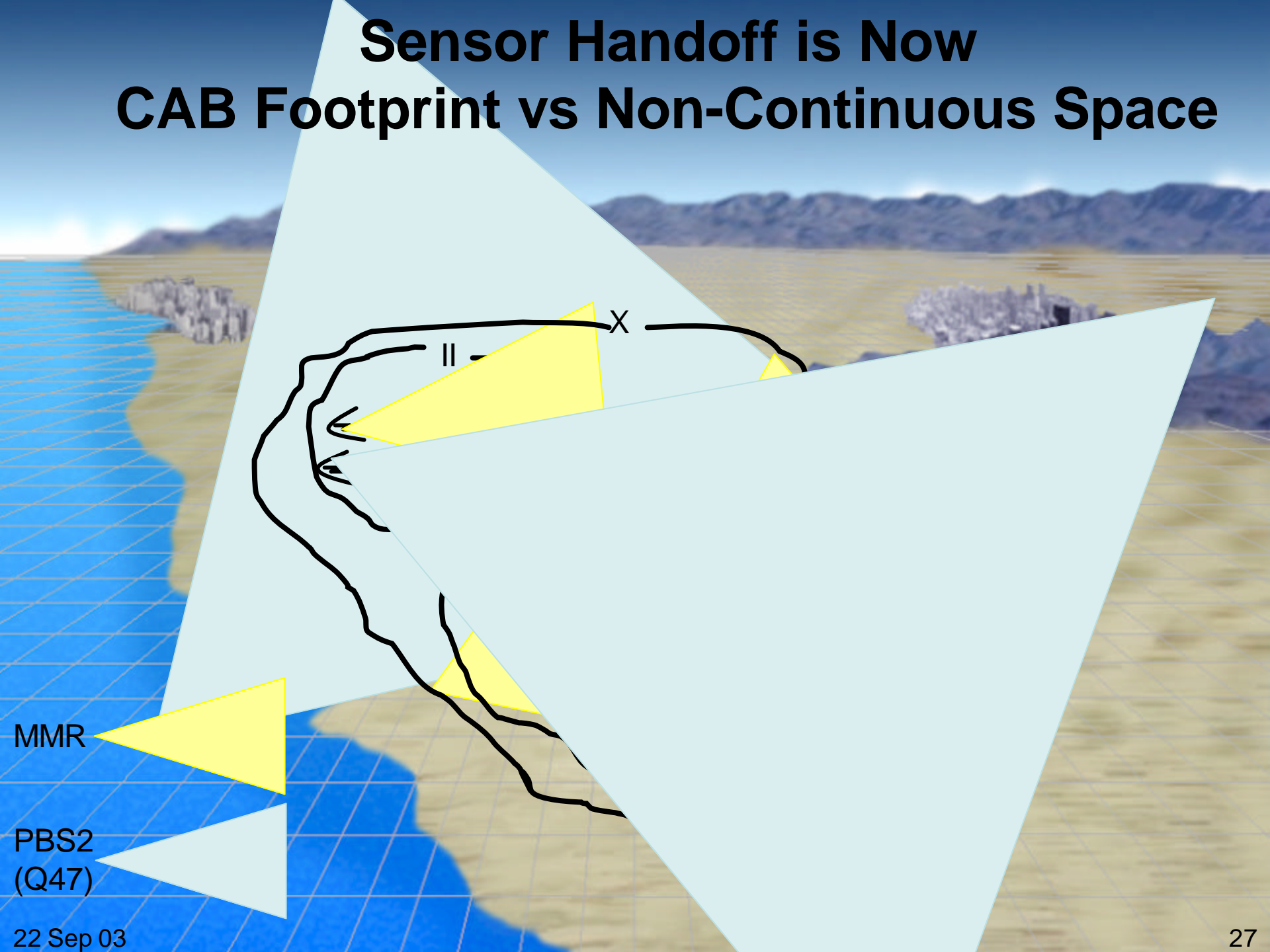
- Part of the Fires and Effects Cell of the UA Brigade Headquarters
- Have counterparts in the NLOS Battalion, as well as, the Aviation Squadron

# Sensor Handoff Today

## Echeloned



# Sensor Handoff is Now CAB Footprint vs Non-Continuous Space



MMR

PBS2  
(Q47)

22 Sep 03

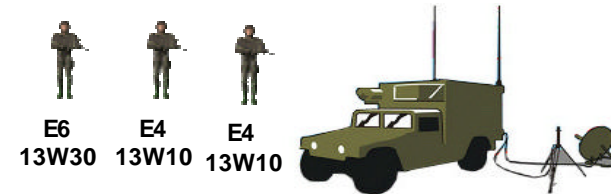
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# Meteorological Data

**Met Data: Not just for use by the cannons in the UA.**



MET Section  
Sensor Plt of NLOS Bn

- **NLOS Cannons**
- **NLOS LS (far forward in AO)**
- **NLOS Mortar**
- **BLOS - every MCS & INF Platoon**
- **AVN Squadron (BLOS)**
- **UAV – all classes from Platoon through Brigade**

# Challenges



- Inter-Service Policies
- NIMA 3D Digitized Terrain
- Definition of Joint Standards and Protocols before we bend metal
- Single Integrated Air, Space, SOF and Ground and Maritime Pictures

# ***UAMBL***

## ***Units of Action Maneuver Battle Lab***

### **Questions**

**COL Waggoner  
UAMBL COTD Directorate**

